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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

CHAIRMAN

October 21, 2004

The Honorable Edward J. Markey
United States House of Representatives
Washington, D.C. 20515

Dear Congressman Markey:

On behalf of the U. S. Nuclear Regulatory Commission (NRC), I am responding to your letter dated August 19, 2004, requesting information about the Commission's efforts to secure radioactive materials that could be used to make dirty bombs. You expressed concerns related to the availability of materials overseas and domestic security.

I would like to assure you that the NRC is addressing the security of high-risk radioactive materials, including materials in other countries. Even before the terrorist attacks on September 11, 2001, NRC was, and continues to be, vigorous in promoting increased security and safety of radioactive materials worldwide. Our activities have involved extensive cooperation with other cognizant Federal and State agencies, national and international organizations, and individual countries.

Our responses to your specific questions are enclosed. In response to your request for a copy of the inventory from the interim database, staff has determined it contains sensitive information which could be useful to a terrorist and therefore should not be disclosed to the

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Exemption number 2.5
Nuclear Regulatory Commission review required before public release.

Charles L. Miller, Director IMNS
Name and organization of person making determination.
Date of Determination 9/15/04

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public. In lieu of attaching the entire sensitive document to this letter, the staff has provided a redacted sample of the type of sensitive information you requested that is contained in the database. In addition, the staff will be available to demonstrate the interim database to you, or your designee.

If you have further questions regarding this matter, please feel free to contact me.

Sincerely,

Nils J. Diaz

Enclosure:
Response to Questions

RESPONSES TO QUESTIONS FROM CONGRESSMAN MARKEY, AUGUST 19, 2004

A. Questions on Obtaining or Exporting Radioactive Sources Illegally

Question 1: Has the Commission received other notifications of the availability of unwanted radioactive sources to interested parties overseas such as the one obtained by my office? If so, please list all such notifications, and the actions taken by the NRC to address them. If it is not the NRC's responsibility to address these matters, whose is it?

Answer 1:

No, the specific site you have identified is the first report the Nuclear Regulatory Commission (NRC) has received. No other notifications of unwanted radioactive materials overseas that are of sufficient quantity potentially to be an effective terrorist weapon have been reported. However, the NRC occasionally receives reports of possible attempted illegal sales or trafficking of radioactive materials overseas. Most of these attempted sales are fraudulent and do not involve actual radioactive material, but some do. In general, it is the State Department's responsibility to investigate all such notifications. The State Department Office of Regional Nonproliferation and the appropriate U. S. Embassy attempt to have local authorities arrest and prosecute the sellers under local laws, if appropriate laws exist.

ENCLOSURE

Question 2: The following websites and companies, in addition to the one that advertised the free cobalt source, also advertise used radioactive devices for trade or sale: http://www.logwell.com/tech/ssexchange/index.html
http://www.frontlinedesignsolutions.co.uk/source
www.afabtechnology.com/uscob60sys.html
http://www.nats-usa.com/

a) Does the NRC monitor and/or educate the operators of these websites and companies (and/or other such sites if they exist) to ensure that sources are not provided to anyone who doesn't have the appropriate license? If so, please describe all such activities. If not, why not?

b) Is the NRC aware of any instance in which a source offered for sale or trade on one of these (or other) websites was provided to someone who did not have the appropriate license? If so, please fully describe all such instances.

c) Has the NRC contacted the regulatory authorities in other countries or the International Atomic Energy Agency when it learns of the existence of such sources to urge that action be taken to prevent them from being readily transferred around the world? If so, what has the NRC done with respect to the aforementioned source? Are there any other instances in which the NRC has taken similar action? If the NRC has not taken action to contact foreign or international regulators about such matters, why not?

d) What export requirements exist for such devices, particularly those intended to be exported to countries such as Saudi Arabia?

e) Once the proposed rule on the export and import of radioactive sources becomes final, how will NRC ensure that companies in the business of exporting sources comply with the requirements? Please describe the plans the Commission has to conduct random audits of companies who export these materials. If there are no such plans, why not?

f) What will the penalties for failing to comply with the rule, once it becomes final, be?

g) Will the rule also apply to licensees in Agreement States?

h) Is the Commission at all concerned that there is evidently a significant quantity of free cobalt in Beirut available to anyone who wishes to pay for its transport? If so, what has the Commission done to address its concerns? If not, why not?

Answer 2a:

The NRC does not actively monitor and/or educate operators of such websites. However, NRC responds to allegations or other specific reports of possible unauthorized distribution and sale of radioactive material on a case-by-case basis when it is a domestic site. The reports generally involve low-hazard sources (for example, ore samples and luminous tritium sources), which do not present a security concern. If an item is brought to the NRC's attention, NRC reviews available information to determine if the sale or distribution of the item is authorized by the proper NRC or Agreement State licenses. If it appears that the sale or distribution may be unauthorized and a domestic website is involved, NRC requests the responsible website to have the item removed from sale and to identify to NRC the

seller and any buyers. In two recent cases, NRC issued subpoenas to a website operator to require disclosure of information about the sellers. NRC or the appropriate Agreement State then contacts the sellers and any buyers, and the individuals are advised of the regulations and directed to stop the sale until proper licenses are obtained. If the sales continue without the proper licenses, the sellers and buyers would become subject to enforcement action.

Answer 2b:

Since October 1, 2003, the staff has identified one unauthorized transfer. It involved a nuclear gauge containing 75 microcuries of promethium-147, a low-hazard quantity. The NRC staff notified the buyer, who rejected the shipment upon receipt, and it was returned to the California seller. The NRC staff referred the case to California (an Agreement State) with respect to the seller.

Answer 2c:

As discussed in the response to Question 1 above, the State Department addresses such cases, and we have referred the information you have provided us regarding the international site to the appropriate State Department Office.

In addition, the NRC works with the International Atomic Energy Agency (IAEA) and individual countries to improve the international security of sources world-wide (see response to Question 5 below).

Answer 2d:

Currently, most devices containing byproduct material may be exported under a general license, which means that NRC does not have to be notified of the export (see 10 CFR 110.23, "General license for the export of byproduct material"). The responsibility for its safe and secure use has rested on the importer under the regulations of the country into which it is imported. Exports to a few embargoed countries are restricted, but Saudi Arabia is not a embargoed or restricted destination. NRC recognizes that the current export regulations need to be enhanced to address security concerns, and we are proceeding to amend the regulations. To enhance export/import requirements a proposed rule "Export and Import of Nuclear Equipment and Radioactive Materials: Security Policies," Federal Register Notice Reference: **69 FR 55785**, was published for public comment on September 16, 2004.

Answer 2e:

The proposed rule would require that, for certain high-risk radioactive sources, exporters must apply for a specific export license. Export licensees are subject to periodic inspection by NRC to verify compliance. These inspections will be carried out in the same manner as those performed to inspect other materials licensees -- every one to five years.

Answer 2f:

When violations are identified, the licensee is required to correct the violation. For significant violations, the penalty varies according to the circumstances. The penalties can

include a monetary civil penalty, suspension or revocation of the license, and referral to the Justice Department for criminal prosecution.

Answer 2g:

Yes, the rule will apply to licensees in Agreement States. Note that Agreement State authorities do not have jurisdiction over exports and imports, and State licensees must comply with NRC regulations on exports and imports.

Answer 2h:

Yes, the NRC is concerned about unwanted radioactive material because it is more likely to be vulnerable to improper disposition. As noted in Answer 2c, we have referred your letter to the State Department for possible further investigations.

Question 3: Companies within the U.S. manufacture instruments that utilize radionuclides for various industrial procedures such as measuring the thickness of materials, industrial radiography or well logging, in addition to numerous medical applications.

a) What are the licensing requirements for such devices?
b) How does NRC ensure that the companies selling these devices understand the licensing requirements and ensure that they are met?
c) How would such a company verify that a prospective customer that seemed to have its paperwork in order had not falsified the documentation?
d) Is there a requirement that such companies verify (by contacting the NRC or Agreement State) that all prospective customers possess the appropriate authorization to own these devices before each sale is made? If not, why not?
e) How often does the NRC audit the sales made by these companies to ensure that they are only providing these devices to legitimate, licensed customers either domestically or abroad?
f) While the proposed NRC rule will require any proposed export of these devices to occur only to recipients with verified licenses, it is not clear that there is any similar requirement for domestic sales. Does NRC plan to require companies making domestic sales of radioactive materials to verify that the buyers have the appropriate license to own the devices? If not, why not?

Answer 3a:

NRC issues two different types of licenses: specific and general. The following provides a brief description of NRC licensing requirements.

A specific license is issued to a named person who has filed an application for a license. Companies who manufacture or distribute products containing byproduct material must possess a specific license authorizing the distribution of such products. The licensee is required to demonstrate that all products are manufactured, tested, and distributed in accordance with the specifications provided in its license. Applicants are required to provide specific information about the sources and products, as outlined in Part 32.

"Specific Domestic Licenses to Manufacture or Transfer Certain Items Containing Byproduct Material." The information required must include radionuclides and activities, containment and construction, labeling, quality control and assurance programs, and any other information required by the NRC, including experimental studies and tests.

The manufacturer or user of the specifically licensed devices must have equipment and facilities that are adequate to protect health and minimize danger to life or property. The manufacturer or user must be qualified by training and experience to use the material in such a manner as to protect health and minimize danger to life or property.

Organizations within the U.S. that manufacture instruments which utilize radionuclides for various industrial procedures, such as measuring the thickness of materials, industrial radiography, well logging, or medical applications, must apply for and be issued a specific license from the Commission or an Agreement State under the provisions of 10 CFR Part 30, "Rules of General Applicability to Domestic Licensing of Byproduct Material," and Part 32, "Specific Domestic Licenses to Manufacture or Transfer Certain Items Containing Byproduct Material." The provisions in 10 CFR 30.33 provide the general requirements necessary for the issuance of specific licenses. Under 10 CFR 32.210, "Registration of product information," the manufacturer or initial distributor of a sealed source or device may submit a request for NRC evaluation of the radiation safety information about its product, and register the product information with the NRC or an Agreement State, in order to demonstrate the compliance of the product with regulatory requirements.

A general license is effective without the filing of an application with the Commission or the issuance of a licensing document to a particular person. For example, under 10 CFR 31.5, "Certain detecting, measuring, gauging, or controlling devices and certain devices for producing light or an ionized atmosphere," commercial and industrial firms; research, educational, and medical institutions; individuals; and Federal, State, or local Government agencies may be granted a general license to acquire, receive, possess, use, or transfer devices that are designed and manufactured for detecting, measuring, gauging, or controlling such properties as thickness, density, fluid level, radiation leakage, and chemical composition. Among other requirements in 10 CFR 31.5, any person who acquires, receives, possesses, uses, or transfers a generally licensed device must maintain the device's labels; perform leak tests; ensure that label instructions are followed; maintain records of compliance with these requirements; notify the manufacturer and the NRC or the Agreement State of any device failure, damage, loss, or theft; not abandon or export the device; and transfer the device only in accordance with specific restrictions. In addition, certain general licensees must register with NRC or an Agreement State if they acquire devices which contain sources above certain threshold quantities. Generally licensed devices may be used by individuals without radiation safety training.

A company or person must apply for a specific license to manufacture or initially transfer devices containing byproduct material to persons generally licensed, under the provisions of 10 CFR 32.51, "Byproduct material contained in devices for use under 31.5; requirements for license to manufacture, or initially transfer."

Answer 3b:

The NRC ensures that the companies selling these devices understand the licensing requirements through review of the license applications. During the review process, NRC staff remains in contact with the applicant, through phone calls, correspondence, and meetings, to ensure completeness, accuracy, and regulatory compliance. The NRC also provides guidance on the regulations to applicants, through the NUREG-1556 Series Publications, "Consolidated Guidance About Materials Licenses," which is available in the Electronic Reading Room of the NRC public website: www.nrc.gov.

The NRC ensures that the licensing requirements are met through periodic inspections.

Answer 3c:

As stated in 10 CFR Part 30.41 (d) 5, the authenticity of authorizations can be verified by directly contacting the NRC or Agreement State licensing agency, as appropriate.

Answer 3d:

On January 12, 2004, NRC issued security orders to manufacturers and distributors who possess radioactive material above specified thresholds. These orders require specific verifications of customer authorizations above and beyond the requirements in the regulations. The specific requirements in the orders have not been made public because they are protected as Safeguards Information.

Answer 3e:

Sales records are subject to review as part of periodic inspections. Depending on the size and scope of the licensee's program, licensees are inspected every 1 to 5 years. Manufacturers and distributors who received the January 12, 2004 Order are currently being inspected for compliance with the Order. These inspections will be complete by September 2005.

Answer 3f:

NRC has always required distributors to verify that customers have the appropriate licenses to possess the devices. The provisions under 10 CFR 30.41, "Transfer of byproduct material," require the distributor to verify that the transferee's license authorizes the receipt of the type, form, and quantity of byproduct material to be transferred. As discussed in the response Question 3d above, these requirements were enhanced by the order issued on January 12, 2004.

Question 4: It is my understanding that licensees in the U.S. with medical devices containing radioactive sources are authorized to export them under Commission regulations. However, there is evidently no requirement that the government of the country receiving the export confirm that the recipient is authorized to receive it. Clearly, this is a loophole that could easily be exploited by terrorists. I am pleased that the Commission appears to be taking steps to close this loophole with its recently published proposed rule.

a) I have been informed that while there used to be 1,000 teletherapy units in the U.S., there are now 100 or fewer. At least some of these devices were exported. For the past 10 years, please provide a list of all teletherapy and brachytherapy units, "gamma knives," and blood irradiators that have been exported from U.S. Include in your response the name of the company that exported the device, the type of radionuclide exported, an estimation of the current activity of the source, the country, and the name and address of recipient to which the source was exported, and when the NRC last confirmed that the source was still located and being used at the location it was sent to.

b) As indicated earlier, the North American Technical Services, Inc. (see http://www.nats-usa.com/), which exports radioactive devices, has numerous offices and customers in the Middle East. Has the NRC ever audited this company to ensure it is following regulations? If not, why not, and was the NRC even aware of this company's existence? Is the Commission at all concerned that sources are being exported to countries that may not have the security regulations in place that guarantee that they can't be stolen by terrorists? If not, why not?

Answer 4a:

As discussed in response 3a, the NRC does not require reports of exports of medical devices, and therefore does not have the requested information on exports of these types of devices.

Answer 4b:

No, the NRC was not aware of North American Technical Services. This company does not hold a specific license issued by NRC. However, the company website indicates that it is associated with Capintec, which does hold a specific NRC license and is authorized to distribute products containing radioactive material.

The NRC is concerned about the need for all countries to maintain adequate security of radioactive sources, and is working with the international community to achieve that goal. As discussed above, NRC has issued a proposed rule for public comment that would enhance security of exports.

Question 5: It is my understanding that Russia is the largest exporter of bulk cesium chloride. What is the NRC doing to ensure that Russia and other major exporters of radioactive isotopes are improving both their domestic controls and export controls over these materials? Please list and fully describe all such activities.

Answer 5:

NRC has supported U.S. Government efforts to establish common international guidelines governing the export and import of high-risk radioactive materials. This effort has resulted in a major revision to the IAEA Code of Conduct for the Safety and Security of Radioactive Sources. The revised Code of Conduct is available on the IAEA website at http://www.iaea.org/Publications/Standards/index.html. Following issuance of the Code of Conduct, the Commission has played a key role in multilateral meetings to develop a related document providing internationally accepted guidance for export and import activities involving high-risk radioactive material. This export/import guidance document is expected to be approved later this year, and then it will be published by IAEA.

Although the Code of Conduct does not have the stature of an international treaty, and its provisions are non-binding on IAEA member countries, the NRC is nevertheless proceeding to revise its export/import regulations to incorporate the Code of Conduct recommendations, consistent with our responsibilities under the Atomic Energy Act and our mission to ensure the common defense and security.

Many countries do not have adequate regulatory safety or security controls on the material within their borders. A basic principle of the Code of Conduct is that international movements of such high-risk radioactive material should not take place without the prior notification of the exporting and importing countries. The Code of Conduct contemplates that, other than in exceptional circumstances, a receiving country should not permit the import of high-risk radioactive material unless it has the technical and administrative capability, resources, and regulatory structure needed to ensure that the radioactive material will be managed in a manner consistent with the provisions of the Code.

The U.S. Government is working with the IAEA through the IAEA Model Project Program to participate in IAEA missions to assess and evaluate regulatory programs world-wide. The Department of Energy (DOE) is providing funding for these missions, as well as assistance to countries which request it. It is likely that NRC staff will participate in some of these IAEA and/or DOE missions. NRC will also request the release of information gathered during missions to countries to assist in its export licensing determinations. Additionally, through its 36 regulator-to-regulator arrangements for the exchange of technical information with other countries, NRC will also gain insights into national controls on high-risk sources.

B. Questions on the Missing Gammator Sources

Question 1: Your May 28 response states that "NRC remains attentive for any new information on the status of the remaining sources."

a) What precisely does this mean? Have NRC personnel conducted site visits to the licensees of the missing sources to further investigate? If not, why not?
b) If so, please describe each visit, including the date of the visit, the steps taken during the visit to attempt to determine the whereabouts of the source, and any follow-up steps taken after the visit.
c) Have NRC personnel taken any other tangible steps to determine the whereabouts of these sources? If so, please describe all such measures, including the date on which the step was taken.
d) Has the manufacturer been contacted to determine if any of these sources have been returned?

Answer 1:

The NRC staff believes that reasonable efforts have been made to identify and locate the missing devices. Additional information is provided below.

Most of the Gammator devices in question were distributed to schools in the 1960s. The original manufacturer, Radiation Machinery Corporation (RAMCO), was liquidated in 1970, but there were successor companies. These companies continued to distribute devices similar to the Gammators under various model numbers. We have been unable to establish a "definitive list" of original Gammator devices.

Most of the effort to account for Gammator devices was conducted in the 1995-1997 timeframe. As discussed in our letter dated May 28, 2004, this was part of a broader NRC effort, the Formerly Terminated License review project. Most of the Gammators were distributed in the Northeast. Therefore, an NRC Region I staff member was assigned to follow up. Through a variety of sources, including contacts with the manufacturer's successors, he developed a list of Gammators and available information about each device.

Because a large number of the Gammators were distributed to schools located in Agreement States, the NRC presented a summary of the information available at the September 1996 All-Agreement States Meeting. The NRC encouraged the Agreement States to resolve the current location of Gammators listed as having been distributed to facilities in their jurisdictions, for which insufficient documentation was available to confirm that such devices were appropriately transferred or dispositioned. This was re-emphasized in a March 10, 1997, letter from NRC to all Agreement and Non-Agreement States.

In 1997, representatives of the Conference of Radiation Control Program Directors (CRCPD) met with representatives of the NRC and the Department of Energy (DOE). The CRCPD was requested to follow up on Gammators which could be candidates for the DOE

Source Recovery Program. CRCPD accepted the task, using the list of Gammators developed by NRC. CRCPD expanded the list to include contact names and telephone numbers. It also organized the information by State, serial number, and status, so that redundant or conflicting information was more easily identified and resolved. Through the coordination of the CRCPD, the DOE Off-Site Source Recovery program was able to schedule efficient and economical recovery of several of the unwanted gammators. This effort has continued to date.

Through the above efforts, the disposition of most of the known Gammators has been determined. The CRCPD list includes eight devices which are unlocated, and we have recently obtained information accounting for two of those. Specific information on the eight devices is summarized below:

1. Serial Number 1020, Model 50B, distributed to Montville Township High School, New Jersey. An NRC inspector visited the Montville Township High School on July 17, 2000, and performed radiation surveys and visual surveys at the school, but did not locate the device. Based on a telephone conversation with the science supervisor from the school, who indicated the device might have been transferred to the Department of the Army, Picatinny Arsenal, inspectors contacted the Army personnel at Picatinny Arsenal. Representatives of the Picatinny Arsenal performed a physical search and a records search, and did not find any evidence of having this device at their location. They documented their actions in a memorandum dated January 6, 2000. Their actions were reviewed by NRC in subsequent inspections at the Picatinny Arsenal, and this device has not been located.

2. Serial Number 1076, Model unknown, possibly distributed to Aberdeen High School, Maryland (Agreement State), and possibly transferred to U. S. Army Aberdeen Proving Ground. Maryland officials report that they have no record that the school was ever licensed to possess the device. Representatives of the high school stated that they have no records prior to the past 10 years, and that they cleaned out the old high school because they are building a new one, and no such device was found. NRC inspectors routinely inspect the U. S. Army site, because several Army commands are authorized to use radioactive materials pursuant to a variety of NRC licenses. Self-shielded irradiators are authorized on some of these licenses, but to date, an irradiator with this serial number has not been identified at Aberdeen Proving Ground.

3. Serial Number 1015, Model B34, distributed to Mother Cabrini High School, New York, New York (Agreement State). RAMCO records do not contain a contact person, but do state that they had contact with someone at the school in April 1973. CRCPD 1997 notes state that the irradiator was not there in Spring 1997. City of New York staff are continuing to search for documentation of this device.

4. Serial Number 1036, Model 50B, Long Island University, Brooklyn, New York (Agreement State). RAMCO records indicate contact by RAMCO in March 1973. A service company reported analysis of a leak test sample on the device in 1988. CRCPD notes say

it might have been removed in 2000, but this has not been confirmed as of March 2003. City of New York staff are continuing to search for documentation of this model and serial number.

5. Serial Number 1097, Model M38-2, New York Institute of Technology (NYIOT), Old Westbury, New York (Agreement State). RAMCO records list a person last contacted by RAMCO in 1971. Information provided by the State of New York, Department of Labor to the NRC in 1996 states that NY License No. 3169 does not have any record of having this device, but that there are two other campuses of IOT in New York City. CRCPD 1997 notes state that the school has no record of having the device. State of New York staff are continuing to search for documentation of this model and serial number.

6. Serial Number 1158, Model unknown, Nippi New York, Inc. (Agreement State). No address or other contact information available. RAMCO records for the distribution to Nippi New York Inc. do not include an address or contact person. CRCPD 1997 notes state that there is not a State of New York Department of Labor license for this company, but there may be a license issued by the City of New York. In addition, the CRCPD 1999 notes indicate that the device was sent to Nippi in Fort Lee, New Jersey. NRC has no records of a license issued to a company by the name of Nippi. NRC has been unable to locate a company named Nippi in Fort Lee or any other location in New Jersey. State of New York and Region I staff are continuing to search for documentation of this device.

7. Serial Number 0024, Model unknown, United Blood Services, Las Vegas, Nevada (Agreement State). This device was identified on a 1988 list of devices for which Isomedix performed analysis of a leak test. Nevada officials recently reported that the device was licensed and inspected from 1983 through 1994, and that the Model was a Gammacell 1000, not a Gammator. During a 1997 inspection, it was noted that the source was transferred to an authorized licensee. Therefore, it does not appear that this device was a Gammator, and it is now accounted for.

8. Serial Number 1151, Model 50B, Johns Hopkins University, Maryland (Agreement State). As discussed in our letter dated May 28, 2004, this device was erroneously reported as unaccounted for, and in fact is accounted for.

In summary, there are now 6 unlocated Gammators from the CRCPD list. The NRC staff believes that it is possible that information on the devices may come from unexpected sources, and therefore, the NRC must remain attentive to reports of "found" devices in case they contain information related to a missing Gammator.

Question 2: Your response stated that the Department of Energy is currently identifying funds to support recovery of the Gammator sources.

a) What is the status of these efforts?
b) How much money will be required to recover all the unwanted Gammator sources?
c) Have these funds been obtained? If not, what is being done to identify alternate funding? If so, when have/will the sources be recovered?
d) What is the status of funding for FY 05 and FY06? What are you doing to ensure that these funds are available?

Answer 2:

Your request for information concerned the Department of Energy's programs. Therefore, we requested information from DOE and were provided the following information:

a) The Department of Energy, National Nuclear Security Administration, has included in the FY 2005 President's Budget a request for $5.6 million total budget for the U.S. Radiological Threat Reduction (USRTR) Program (also known as the Off-Site Source Recovery Program). The scope of the USRTR program includes large cesium-137 sources such as those found in Gammator irradiators. However, Cesium-137 recovery is only a portion of the scope of work for this funding. The USRTR program is actively engaged in identification and recovery of a wide variety of excess and unwanted radioactive sources and devices in the U.S. containing Americium-241, Plutonium -238 and -239, Strontium-90, and Cobalt-60, to name the isotopes of greatest concern, in addition to Cs-137. The USRTR program has recovered and secured a total of over 10,000 radioactive sources of all kinds to date.

b) Currently there are approximately twelve Gammator irradiators registered with the USRTR program for recovery. Two of these were recovered in the August 2004 timeframe and are now secured. Recovery of the remaining ten units is in the planning process and the USRTR program hopes to accomplish these recoveries in early FY 05. The preliminary cost is estimated to be as much as $700k, but we are working on ways to reduce these costs. USRTR maintains a secure database of excess and unwanted radioactive sources in the U.S. and continually up-dates the priorities for recovery in cooperation with the NRC. With resources available, the USRTR makes an effort to search for and identify radioactive sources that may present a threat and schedule them for recovery. Currently there are over 2,000 sources on that list, including the Gammators.

c) The FY 2005 House Energy and Water Appropriations bill included the $5.6 million cited above. However, a Continuing Resolution provides funding at the FY 2004 level, which allows operation thru November 20, 2004. Alternative funding to recover sources in the United States would likely require a reprogramming from other NNSA mission activities, which is not currently being sought. When the FY 2005 Energy and Water Appropriations bill is passed, the funding which Congress makes available for USRTR will be apportioned to the recovery of all of the sources of concern including cesium-137 Gammators, according to the prioritization agreed upon with the NRC. At that point, if funding is insufficient, alternatives will be explored.

d) The status of funding for FY 2005 is addressed in the answers to a) and c) above. The FY 2006 budget is currently in formulation. The National Nuclear Security Administration (NNSA) is requesting additional funding in FY 2006 to address cesium-137 as well as other types of sources. The NNSA FY 2005 funding request was submitted as part of the FY 2005 President's budget, and the FY 2006 budget will be submitted by the Department of Energy to the Office of Management and Budget for inclusion in the FY 2006 President's budget.

Question 3: Your response states that NRC believes that all the unwanted Gammator sources are being properly controlled by the licensees. Has the NRC visited these sites in order to verify this? If not, then how do you know?

Answer 3:

No, the NRC staff has not visited all Gammator sites. The NRC and the Agreement States periodically inspect licensees who possess Gammators at a designated frequency of at least once every 5 years. Based on the inspections that have been conducted, there has not been any indication that the devices are not being properly controlled.

Question 4: Your response indicates that in 1996, a service and manufacturing licensee offered to recover the unwanted Gammator sources at a reduced cost, but that none of the licensees accepted the offer. The September 11, 2001 attacks may have heightened licensees' awareness of the security risks associated with these materials, and indeed, your response states that "it may be possible to negotiate a similar reduced cost option if enough licensees indicate a willingness to take advantage of such an option." What has the NRC done to explore the licensees' willingness to pay a reduced cost for disposal of these sources and to facilitate such an option to be offered and utilized?

Answer 4:

The NRC staff believes that even a reduced recovery cost would be burdensome for most of the licensees who possess unwanted devices. The staff believes that requesting the licensees to pay for disposition, even at a reduced cost, would result in a time-consuming recovery process, which would probably be only partially successful. Therefore, in light of the heightened security concerns, NRC believes that the most expeditious strategy is to continue working with DOE to arrange recovery of the devices. If for some reason this strategy is unsuccessful, the NRC staff plans to pursue the reduced cost option.

Question 5: The Conference of Radiation Control Program Directors, Inc. has received funding from EPA and DOE to start up an orphan source recovery program. Since startup, this program has been dependent upon the NRC for operational funding. What NRC funding level is planned for FY 05 and 06? If the funding has decreased, please explain why.

Answer 5:

The CRCPD has requested NRC support in the amount of about $100,000 per year in fiscal years 2005 and 2006. Currently, the NRC budget supports that request.

The amount of funding requested by CRCPD would be a reduction from the approximately $225,000 per year provided by NRC for the last 2 years. CRCPD reduced its funding request after reaching a mutual understanding with the NRC staff that NRC would not be asked to fund 100% of the ongoing program because the CRCPD program is now established, the majority of licensees are Agreement State licensees, and some of the orphan sources to be potentially addressed by the program are not under NRC jurisdiction (for example, radium-226 sources, which contain natural radioactive material not subject to NRC regulation under the Atomic Energy Act).

C. Questions on Other Security Matters Related to Dirty Bombs

Question 1: Your response states that NRC has completed an interim inventory of high-risk radioactive sources possessed by NRC or Agreement State licensees.

a) Please provide my office with a copy of this inventory.
b) Please describe the process by which this inventory was developed.
c) Have NRC personnel reviewed all licenses for the high-risk radioactive sources identified and checked to ensure that the licensee still possessed and was using the source? If so, please provide a table containing the following: I) the identity (i.e., which radionuclide it is) and licensee of each missing or unwanted source, ii) its activity level, iii) for each unwanted source, the steps NRC is taking to facilitate its disposition, and iv) for missing

sources, the location it was last known to be at, and the steps NRC has taken to determine its location. If not, why not?

Answer 1:

A redacted sample of the information from the inventory, along with printouts of the inventory's data input screens, is attached. The inventory is not a listing of unwanted or missing sources. It is a listing of active licensees with an inventory of radioactive material in their possession. The inventory database, as well as this sample of the database, have not previously been released outside the NRC and are available only to NRC and Oak Ridge National Laboratory employees. Both are "Official Use Only" documents, marked "Not for Public Release," and should not be released to the public. This designation is based on a determination by the NRC staff that the information could reasonably be expected to be useful to a terrorist in a potential attack. We would be happy to provide a demonstration of the interim database to you or your designee at our NRC headquarters.

Each licensee that was authorized to possess radioactive material above specified thresholds was asked to provide information on that radioactive material. The list of licensees to be contacted was developed by contacting the Agreement States and asking them to provide the list of licensees in their state that could possess sources above the thresholds. The list of NRC licensees was obtained based on the possession limits specified in the NRC License Tracking System. Each Agreement State was asked to choose whether to contact its own licensees for the information, or to have the NRC contractor, Oak Ridge National Laboratory (ORNL), conduct the survey. Twenty-one Agreement States decided to contact their own licensees. ORNL conducted the initial survey for the NRC and for the remaining Agreement States. The Agreement States that conducted their own data collection provided the information to ORNL. ORNL did the initial compilation of all data. Depending on who was contacting the licensee, the licensee could provide the information on-line, by computer disk, by phone, or by paper copy. NRC and the Agreement States made follow-up contacts to those licensees that did not respond to the initial request. This was a voluntary information request, and licensees were not required to respond.

The NRC staff has not reviewed all individual licenses or checked to determine if licensees still possess and are still using the sources. NRC and the States conduct inspections and verifications at varying frequencies based on risk, which assures the most effective use of resources. In addition, the NRC and the States may conduct prompt inspections for specific cause, such as a reported loss of a high-risk source.

Question 2: Your response also states that NRC and other agencies are developing a National Source Tracking System that will provide cradle-to-grave tracking of high-risk sources, and that NRC staff planned to send a proposed rule to the Commission by the end of June.

a) Please describe the tracking system and how sources will be tracked.
b) Do you still anticipate that requirements for the tracking system will be promulgated via public rulemaking? If not, why not? If so, please provide a timeline for all steps of this process.
c) What enforcement mechanisms will exist to ensure that licensees comply with the requirements of the tracking system?
d) Will NRC perform regular audits to ensure that the licensees of the sources are storing and accounting for them properly?
e) When will this program be fully operational?

Answer 2:

The proposed rule mentioned above was not for the National Source Tracking System (NSTS). It is a proposed revision to export/import regulations.

Although the NSTS has not yet been developed, the NRC has anticipated what information will be collected in the NSTS. As part of the developmental efforts, NRC staff meet regularly with other stakeholder Federal agencies, and their input and needs are being considered in the development of the NSTS. Each licensee that makes a new high-risk sealed source, transfers a high-risk sealed source to another licensee, receives a high-risk sealed source, destroys a high-risk sealed source, or disposes of a high-risk sealed source will be required to report the transaction to the NSTS. Licensees will be required to report the transaction by the next business day. Source information to be reported includes the make, model, serial number, radioactive material, activity, and date. Other information to be reported will include the company name and license number of both the shipping and receiving company, shipping date, estimated arrival date, and actual arrival date. The sources will be tracked in the NSTS by the combination of the make, model, and serial number. Licensees will be able to provide the information to the NSTS by completing an on-line form, filling out a paper form, or electronically. The requirements will apply to both NRC and Agreement State licensees. The NSTS will meet and exceed the Code of Conduct recommendations concerning establishment of a National Source Registry.

Development of the NSTS database system itself will not require rulemaking, but rulemaking will be needed to require licensees to provide the information to be entered into the NSTS. The proposed rule is expected to be published for comment in late Spring/Summer of 2005. The final rule will be published Summer 2006 with an implementation period through March 2007. Subsequent to the rulemaking, NRC will establish inspection and enforcement practices relevant to NSTS requirements.

Licensees will be subject to inspection to verify that transactions are properly reported and that the inventory of sources listed in NSTS matches what a licensee physically possesses.

The transaction reporting aspects of NSTS are scheduled to be fully operational by the end of March 2007.

Question 3: My understanding is that DOE recently performed a review of the Material Control and Accounting program at the Commission. Please provide copies of all materials associated with that program review, including all recommendations, reports (both draft and final), memoranda, and correspondence.

Answer 3:

In September 2003, the NRC entered into a contract with Oak Ridge National Laboratory (ORNL), a Department of Energy contractor, to conduct a review of NRC's material control and accounting (MC&A) program. The period of performance for the MC&A program review was September 2003 - September 2004. The NRC received a draft of the ORNL report in August 2004. The NRC is in the process of reviewing the report, and staff follow-up activities resulting from this program review will be addressed in a paper scheduled to be sent to the Commission in March 2005.

Question 4: Your response states that "security enhancements for other types of licensees possessing high-risk radioactive materials (category 2 and higher quantities of radionuclides identified in the IAEA Code of Conduct, Table 1) are under consideration..."

a) Please list a timeline for these activities.
b) When will these activities be complete?
c) Will large food and medical sterilization facilities that contain millions of Curies of radioactive sources be required to i) harden the structures and buffer zones surrounding the facilities to make them less vulnerable to attacks, including truck bomb attacks, ii) be required to employ security guard force personnel, and iii) be required to ensure that all personnel with access to the radioactive source material undergo criminal and security background checks?

Answer 4:

NRC plans to issue security enhancements as appropriate for the additional groups in late 2004 or early 2005 and to complete the process by April 2005.

Orders were issued to large irradiators on June 6, 2003. The Orders require the large irradiator licensees to enhance access controls and perform background investigations. However, the level of detail of background checks in each state could differ. You should note that the NRC has requested legislation that would significantly strengthen the background checks that could be performed. The specific security requirements in the Orders are Safeguards Information and have not been made public.

Question 5: Your response states that "the security of the devices is checked during safety inspections." How often are such inspections performed for high-risk sources?

Answer 5:

The designated frequency for inspection of Gammators is at least once every 5 years. The frequency for other facilities varies from annual to once every 5 years.

Question 6: The NRC implements the regulations associated with materials that could be used to make dirty bombs in only some States. In others, known as Agreement States, the State Governments are charged with implementing NRC regulations.

a) How does NRC ensure that the Agreement States are implementing and overseeing NRC regulations appropriately and uniformly?
b) If an Agreement State is found to be implementing these regulations inappropriately or ineffectively, what can the Commission do to compel the State to modify its activities?
c) Has this process changed since September 11? If so, please elaborate.
d) If someone were to file a Freedom of Information Act (FOIA) request with the Commission to obtain a list of all licensed radioactive sources, the name and address of the licensees, and the locations of each source, would the Commission approve such a request? Why or why not?
e) Are there any Agreement States who would respond to such a request differently than the Commission would? If so, please elaborate. Can the Commission require the Agreement States to conform to its policies on release of information that could be sensitive?

Answer 6a:

Agreement States adopt regulations to ensure protection of the public health and safety under the authority of individual State laws. As required by section 274b of the Atomic Energy Act, State regulations must be compatible with NRC regulations.

NRC confirms that a State has the authority (under State law) to adopt compatible regulations, has a procedure to adopt regulations, and has compatible regulations in place before an Agreement is signed. After the Agreement becomes effective, NRC conducts periodic reviews of Agreement State programs to ensure that they are adopting and implementing compatible regulations. NRC also reviews both the draft and final regulations developed by each Agreement State for compatibility with NRC regulations.

The Act does not permit NRC to relinquish, delegate, or otherwise give to a State any of NRC's authority and responsibility to protect the common defense and security. Any regulation, or other legally binding requirement such as an order, whose primary intent is to ensure common defense and security, rather than public health and safety, can only be implemented by the NRC. NRC can, under Section 274i, authorize States to conduct inspections of Agreement State licensee compliance with NRC security orders or regulations, but in this case the States serve as agents for the NRC.

Answer 6b:

The Commission has a range of mechanisms which can be used to effect performance improvements in an Agreement State program. First, NRC conducts periodic reviews (at least once every four years) of each Agreement State program using common process and review criteria. The review results are evaluated by a panel of senior managers who determine what improvement is required and the actions to be taken. The NRC informs the State of the review results and recommendations for improvement.

The panel may also recommend that the State program be placed on heightened oversight or probation. Heightened oversight is a formalized process under which the NRC maintains an increased level of communication with an Agreement State program experiencing significant program weaknesses.

NRC can also suspend or terminate a State Agreement and reassert regulatory jurisdiction if a program is found to be inadequate to protect the public health and safety.

Answer 6c:

No, the oversight process has not changed since September 11, 2001.

Answer 6d:

No. NRC would withhold such information because it could reasonably be expected to be useful to a terrorist in a potential attack.

Answer 6e:

The NRC can require Agreement States to conform to its policies on the release of Safeguards Information because Federal law applies. Although NRC cannot require Agreement States to conform to its policies for non-Safeguards sensitive information, in those cases where such information is shared with the Agreement States, the NRC expects that Agreement States will honor NRC's requests for protection of the information from public release.

NRC provided guidance to States on responding to requests for sensitive information on December 19, 2001, based on a policy memorandum from the U.S. Attorney General. Supplemental guidance was issued on July 18, 2002. NRC provided further guidance to States in 2003 on handling information about radioactive materials licensees that the Commission determined to be Safeguards Information, protected under Section 147 of the Atomic Energy Act. The States were further notified that the Commission directed, when it issued the orders for security measures at certain irradiator facilities, that the list of licensees to whom the orders were issued should be considered "Official Use Only" and not released to the public.

Question 7: When scrap metal shipments are found to be radioactive, recipients may reject the shipments and return them to the shipper using a Department of Transportation (DOT) exemption. According to reports to the Conference of Radiation Control Program Directors (CRCPD) regarding the use of this exemption, there were six shipments of scrap metal that contained cesium-137 or cobalt-60 for the period April 1999 - through May 2002. These six cases do not appear to be included in your response. It is my understanding that for a number of years, the Steel Manufacturers Association (SMA) collaborated with James Yusko, a certified health physicist employed by the Commonwealth of Pennsylvania, in the collection and analysis of reports of radioactive material found in metal scrap shipments. The data was periodically shared with NRC. When Mr. Yusko left in early 2000 for a one year assignment to the IAEA in Vienna, this program was discontinued.

a) Why was the DOT exemption data not included in the NRC list of missing sources provided in your response?
b) Does the NRC routinely review DOT exemption use for inclusion in its database of lost, stolen, and abandoned sources? If not, why not?
c) Why did the NRC choose not to continue the data collection activities previously performed by the SMA?
d) Since NRC does not appear to be including reports of radioactive materials that turn up in scrap metal shipments in its lists of stolen or missing sources, does that mean that NRC is under-reporting the severity of the problem?

Answer 7:

One of the six events was reported to NRC and entered into our Nuclear Material Events Database (NMED). However, the report to NRC did not identify the radionuclide, so it was not included in the list of cesium/cobalt/radium events which was provided in our previous letter dated May 28, 2004. The other five events were not reported to NRC.

The NRC staff does not review or actively solicit DOT or SMA data for entry into NMED. However, reports of material found at scrap metal processors, landfills, and similar locations are entered into NMED when reported, even though many of the cases involve material which is not under NRC jurisdiction (for example, radium), or involve insignificant amounts of material or diffuse contamination. In the report provided in the May 28, 2004 letter, over 100 events appear to be reported from scrap metal processors, landfills, or similar locations. Therefore, a large number of scrap metal events are being captured by NMED. The staff believes that its current methodology of capturing reports is reasonably accurate and does not result in significant under-reporting of events.

Question 8: As you know, it is quite expensive to dispose of radioactive sources once the licensees no longer need them. While some medical and industrial processes require the use of radioactive sources, in other cases the use of sources can be replaced by other technologies. Using non-radioactive sources would also presumably reduce the company's security costs as well as the risk that a terrorist might target the company. What is the Commission doing to ensure that licensees are made aware of potential alternatives to the use of radioactive materials? If the Commission is not doing anything, why not?

Answer 8:

The promotion of alternative technologies is outside of the scope of NRC's regulatory responsibility. However, information available to NRC indicates that licensees are well aware of alternatives to radioactive sources. Even before 9/11/01, the NRC staff noted many cases where licensees switched to such alternatives.